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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

March 28, 2005

Reply To
Attn Of: ECL-115

CONFIDENTIAL

Keith Johnson, Manager
Lower Willamette Section
DEQ – NW Region
2020 SW 4th Avenue
Suite 400
Portland, OR 97201

Re: February 2005 Internal Review Draft *Portland Harbor Joint Source Control Strategy Part 1: Site Decision Framework*

Dear Mr. Johnson,

During the February 15, 2005 source control meeting in Seattle, DEQ shared a copy of the internal review draft of the Portland Harbor Joint Source Control Strategy with EPA and requested feedback on the document. A large number of general and specific comments on the strategy have been generated by EPA. For the Joint Source Control Strategy (JSCS) to be truly a joint process, EPA and DEQ should plan a working session to reach agreement on the approach to source control based on consideration of EPA comments. The JSCS will serve as the general framework for the source control process in Portland Harbor.

EPA and DEQ staff and management have been discussing the role of the Safe Drinking Water Act's maximum contaminant levels (MCLs) at the Portland Harbor Site. DEQ requested information on the legal basis for MCLs as potential applicable or relevant and appropriate requirements at the Portland Harbor Superfund Site. Subsection (d)(2)(A) of Section 121 of CERCLA provides that CERCLA cleanups must attain a level or standard of control for hazardous substances or pollutants or contaminants which at least attains legally applicable or relevant or appropriate standards, requirements, criteria, or limitations. 42 U.S.C. §9621(d)(2)(A). That same provision of CERCLA further provides that any CERCLA remedial action shall require a level or standard of control which at least attains Maximum Contaminant Level Goals established under the Safe Drinking Water Act and water quality criteria established under section 304 or 303 of the Clean Water Act where such goals or criteria are relevant and appropriate under the circumstances of the release or threatened release. 42 U.S.C. § 9621(d)(2)(A).

The National Contingency Plan (NCP) states the expectation that usable ground waters will be returned to their beneficial uses wherever practicable, within a timeframe that is reasonable given

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the particular circumstances of the site, and if restoration to all beneficial uses is not practicable, it is expected that further migration and exposure will be prevented. 40 CFR 300.430(a)(1)(iii)(F). Subsection 430(e)(2)(i) of Part 300 provides that chemical-specific ARARs, such as MCLs, should be used as preliminary remediation goals for comparison to contaminant concentrations found in groundwater and surface water at a site. Furthermore, subsections 430(e)(2)(i)(B) and (C) of Part 300 explicitly require non-zero MCLGs or MCLs be attained where relevant and appropriate to the circumstances of the release.

MCLs under the Safe Drinking Water Act are standards that public water suppliers must meet at the tap after treatment. Thus, MCLs typically are not an applicable requirement for CERCLA cleanups. To determine if a standard is relevant and appropriate, the NCP supplies eight factors to consider at 40 CFR 300.400(g)(2)(i) – (viii). The usual factors that make MCLs relevant to a site are: factor two, the medium regulated and the medium contaminated at the site; factor three, substances regulated by the requirement and the substances found at the site; and factor eight, consideration of use or potential use of the affected resource. The same factors, but particularly, factor eight generally make MCLs appropriate to the circumstances of a release, particularly in light of the statutory and regulatory requirements for restoring groundwater and surface water to all beneficial uses. At Portland Harbor, Oregon law designates drinking water as a beneficial use of groundwater and the Willamette River. The groundwater and surface water at the Portland Harbor Superfund Site is potable, i.e., usable. Given this information, at this stage of the RI/FS, EPA considers MCLs as a potential ARAR for the CERCLA cleanup and must consider those as screening criteria for data gathering, risk assessments, and further analysis of risks at the site. Upland sources to the river, unless controlled and determined to not be a threat to river uses and receptors, are within the NPL site.

Attached are the general and specific comments on the document, along with EPA revisions to the table of Screening Level Values. Below is a list of principles that EPA views should underlie source control in Portland Harbor and this strategy:

- The Upland Responsible Party is responsible for source control. If data from the river is necessary to determine the nature and extent of the upland sources; make source control decisions; or design and implement source control measures, such data collection is the responsibility of the Upland Responsible Party.

- The Lower Willamette Group is responsible for characterizing and evaluating the impacts of the off-shore contamination from upland sources to the in-water cleanup through the Portland Harbor RI/FS.

- Upland sources of contamination that enter, or have the potential to enter, the Willamette River assessment area are within the Portland Harbor Superfund site. Upland sources need to be controlled so they are no longer impacting the river by the time the RI/FS is completed to not be considered for CERCLA cleanup.

- Source Control Screening Criteria include chemical-specific standards or guidelines that define acceptable risk levels for human health and the environment (e.g. MCL, AWQC, NRWQC, ORNL). These potential ARARs may be applied to the CERCLA cleanup through the Portland Harbor ROD or RODs.

- Exceedances of any of the Source Control Screening Criteria at the point of discharge to the river (e.g. water at the end of a discharge pipe; soil or material at the riverbank; groundwater measured at the shoreline) will require, at a minimum, further source control evaluation. Significant exceedances at the point of discharge will require implementation of source control measures.

- A high-priority site would typically be defined as having an ongoing source of contamination and significantly exceed an SLV at the point of discharge to the river or represent an imminent threat to human health and the environment. High-priority sites identified by EPA and DEQ must move forward with aggressive source control.

- A medium-priority site would typically be defined as exceeding an SLV at the point of discharge to the river. Medium priority sites will undergo a weight-of-evidence evaluation by EPA and DEQ to determine if source control is necessary, and upland information may be supplemented by in-water data to make this determination.

- Consistent with the MOU, the DEQ is lead agency for the identification, evaluation, and control of contaminant sources to Portland Harbor. The DEQ will provide opportunity for EPA and its partners to offer input on source control documents, as needed. The Joint Source Control Strategy will identify the documents that will be shared. The Strategy also provides the minimum data that would be gathered on a facility.

- Source control evaluations and implementation of source control measures must be integrated into an overall project schedule. A source control schedule should be included as an appendix to the Joint Source Control Strategy.

- Where appropriate, upland source control and in-water cleanup actions should be integrated.

- Information contained in the Record of Decision will help confirm whether upland sources have been controlled sufficiently to ensure protection of human health and the environment.

Please contact me at (206) 553-1078 if you have any questions concerning this matter.

Sincerely,

Sylvia Kawabata

Sylvia Kawabata, Manager
Site Assessment and Cleanup Unit #2

Enclosures:

Comments on JSCS
Table of Screening Level Values

cc: Jim Anderson, DEQ
Kathy Ivy, EPA
Eric Blischke, EPA
Chip Humphrey, EPA
Lori Cora, EPA
Dana Davoli, EPA
Renee Fuentes, EPA

EPA March 2005 Comments on the
February 2005 Internal Review Draft
Portland Harbor Joint Source Control Strategy
Part 1: Site Decision Framework

SECTION 1.1 – OBJECTIVES

Page 1-1, Section 1.1, first paragraph: The general phrase "impact the river" should be used to describe the media possibly affected by upland sources rather than specifically listing "river sediment, groundwater, pore water, and/or surface water," which may be too inclusive or too limiting a description. Similarly, on Page 2-3, Section 2.4, first paragraph, the general phrase "contamination in the river" should be used rather than limiting characterization to "sediment contamination." Also, if a decision has been made concerning the scenarios that will be considered in a risk assessment, a comprehensive list should be provided rather than simply referring to "sediment, surface water, pore water, and fish tissue."

Page 1-1, Section 1.1, third paragraph: The overarching goal of the source control strategy is for DEQ to identify, evaluate and control sources of contamination that may impact the Willamette River in a manner that is consistent with the objectives and schedule for the Portland Harbor RI/FS. This statement should replace the current sentence. Likewise, on Page 4-1, Section 4, first paragraph, language should be modified to clarify the goal for the source control timing: "The process was developed with the goal to complete source control prior to sediment cleanup activities within Portland Harbor." This is also consistent with language on Page 4-4, Section 4.5, first paragraph stating the "...overarching goal to complete source control activities in Portland Harbor by the time of the Portland Harbor ROD is completed in 2008."

Page 1-1, Section 1.1, fourth paragraph:

Objective 1—This objective exceeds the scope of involvement or decision-making role that EPA agreed to in the MOU on upland sources.

Objective 2 –The word "conservative" should be deleted.

Objective 4—This objective should include the following sub-bullets:

- Identify High Priority Sources for which source control measures are required without delay.
- Identify Medium Priority Sources for which source control measures may be required but more information is required.
- Identify Low Priority Sources that may not require source control unless new information becomes available.

Objectives 3 and 5— Decisions concerning the need for source control should not normally require evaluation of data from RI/FS sampling, although in-water sampling data could be used at a medium priority site to supplement upland data. Similarly, language should be removed throughout the document where it states that in-water risks must be shown for source control to be required. This language was noted in Section 2.4.2, and the final paragraphs in Section 4.3.2 and Section 5.2. To make source control decisions, upland responsible parties may need to take samples and gather data from the river, and should do so when it is needed. Any in-water sampling performed by an upland party should also meet the objectives of the Portland Harbor RI/FS in-water sampling plans.

The two objectives should be combined into a clear statement about how upland work and in-water work will proceed in an integrated way:

- Upland data regarding releases of hazardous substances will be integrated into the design of the Portland Harbor RI/FS.
- Upland data gaps will be filled in a time-frame compatible with the overall Portland Harbor RI/FS.
- Upland sources will be controlled in a time-frame compatible with the evaluation, selection, design and implementation of remedial actions within Portland Harbor.
- In-water data regarding the nature and extent of contamination in all media will be integrated into the evaluation, design and implementation of source control measures to the extent necessary to ensure effective source control.
- Early cleanup actions in the river may be necessary to effectively control upland sources.

Objective 6—Since DEQ is making the upland source control decisions, the joint source control strategy should be limited to developing the general framework as to how the State cleanups will be integrated and/or evaluated with consistency with the RI/FS as it progresses.

SECTION 1.2—JOINT SOURCE CONTROL STRATEGY DOCUMENTS

Page 1-2, Section 1.2, "Part 1 - Joint Source Control Strategy – Framework": The title of Section 3 should be renamed "Source Control Screening and Prioritization." Much of the information in Section 5 covers site characterization, which exceeds the scope of involvement or decision-making role that EPA agreed to in the MOU on upland sources. The Appendices cover DEQ's site discovery and evaluation process under Oregon's hazardous waste cleanup regulations. Such guidance documents are not directly relevant to the joint source control strategy and should not be attached. If DEQ wants to have a comprehensive package of the strategy and its guidance documents, then it should be made clear in the strategy that the guidance documents are DEQ's only and being attached to the strategy for information purposes only.

Page 1-2, Section 1.2, "Part 2 – Joint Source Control Strategy – Schedule and Reporting": The Joint Source Control Strategy should cover integration and milestone reporting along with the strategy framework in a single document rather than separating this information into a subsequent second part. A milestone reporting process and a preliminary schedule for achieving source control is a critical element of the JSCS and should be completed through dialogue with EPA as soon as possible.

SECTION 2.3—ROLES AND RESPONSIBILITIES

This section should include a statement as follows:

All sources of hazardous substances to the Lower Willamette River are within the Portland Harbor NPL Site. Groundwater plumes and all other media with contamination above risk-based concentrations or chemical-specific standards from potential applicable or relevant and appropriate requirements (ARARs) that are releasing to or are a potential threat of a release to the Willamette River are within the Portland Harbor NPL Site. The areal extent of contamination impacting the river will be better known by the completion of the RI/FS so that CERCLA remedy decisions can be made. DEQ was designated lead in an EPA/DEQ/Trustee MOU/work share agreement for addressing sources of hazardous substances to the Site. DEQ is using its state hazardous waste cleanup law to implement source control measures. If source areas and contaminated media above risk-based concentrations or ARARs are controlled in all media migrating to or that may potentially migrate to the river, as a site-specific risk-management approach, remediation of these areas likely will not need to be required under a CERCLA ROD.

Page 2-3, Section 2.3, second paragraph: The first sentence should state that "DEQ will require individual responsible parties to identify, evaluate and control the release of hazardous substances and pollutants to the Willamette River such that Federal and State standards and criteria and the remedial action objectives established for the Portland Harbor site are achieved to the extent practicable."

SECTION 2.4—COORDINATION

This section should include a list of commonly needed data from each facility to facilitate evaluation that source control activities are consistent with the RI/FS. Below is a suggested list:

Toxic Cleanup Sites

1. Maps that may indicate important features like old tanks, buildings, rails, etc. where past activities may have resulted in soil contamination that is still acting as a current source.
2. Data from the site environmental assessments and details about the data:
    - Cores/borings; Indicate what intervals were looked at, what criteria were used to decide whether to analyze for certain constituents, etc.
    - Indicate the standards to which the data is compared to determine whether certain concentrations may be a problem (this will be helpful if new solubility information is developed, etc.)
    - Indicate the CERCLA problems against which the data are being evaluated.
    - Frequency of monitoring for ongoing sampling events.
    - Indicate any active wells that are still being monitored and how that data compares to the selected cleanup standard.
    - Indicate if the site was cleaned up under the voluntary cleanup program or other.

3. Post cleanup data, including a description of what was left in place and where, and confirmation sample information.

RCRA Sites

1. Past and current status of operable units regarding compliance, data, materials handled relative to CERCLA sediment problem.
2. Corrective actions, past present, and pending.
3. Permit information relative to CERCLA sediment problem.

General Documentation Needed

1. What contaminants of interest (COIs) are typically associated with the industry currently working at the site? (Once the HHRA /ECORA is completed, this comment will refer to "contaminants of concern").
2. What COIs are typically associated with industries that previously occupied the site (go back to 1890~ when most harbors began development of heavy industry and track to date)
3. What groundwater information is available to verify that contamination does not exist beneath the site that is moving toward the river?
4. Tanks/other process equipment. What information exists to show that previous spills/leaks have been cleaned up completely before groundwater was impacted? If no information exists, additional soil and groundwater information is needed.
5. Is the site paved?
6. Are storage areas covered?
7. Where are the drainage ways from the site?
8. Do drainage ways lead to outfalls (see permitting, above) ? Drywells? Other?
9. Upland site tours for imminent reports may be quite helpful to expedite review.
10. Sequence of review should be discussed (simultaneous trustee/agency review may avoid duplication of effort on DEQ's part in responding to comments).
11. Each site should have maps which detail all the potential sources at the site, such as tanks, pipelines, dry wells, septic tanks, trenches, lagoons, sewer lines, others. It is critical for each site to have a map which locates the site relative to the river and other nearby sites, and also a figure which has the type of detail mentioned above. In addition, hydrogeologic cross-sections should be included to summarize the relationship of sources, formations, ground water, and surface water. Any other figures may be useful or not but these three are a must have.
12. The greatest part of the documentation reports (90 percent suggested) should present facts without introducing opinion. In the conclusions/recommendations section, judgment of the data presented may be introduced (rather than persuading the reader in sections meant to provide background, factual information).
13. By media, the reports should be clear in what units the measurements are reported (in mg/kg, etc.). Data should be presented in comparison to Source Control Screening Criteria.

Page 2-3, Section 2.4, first paragraph: The first sentence in this paragraph makes a statement regarding adverse effects on beneficial water uses. This paragraph should also indicate what federal standards should be used to screen potential sources because such standards are potential ARARs for the CERCLA cleanup (e.g., SDWA MCLs). The following sentences should be added to the end of the paragraph: "The results of the in-water risk assessment will be used to establish contaminant specific cleanup levels for the Portland Harbor site. Upland sources that prevent the in-water cleanup levels from being achieved will also need to be controlled."

Page 2-4, Section 2.4.1: This section should discuss what else is needed to ensure effective information sharing. It may be useful to cite the PH CSM as one tool that will be used to facilitate information sharing. There should also be some elaboration about how EPA and DEQ will work together to ensure that EPA is aware of upland information that is relevant to the in-water RI/FS and the design, evaluation and implementation of upland source control measures considers relevant in-water RI/FS information.

Page 2-4, Section 2.4.2: This piece should not be highlighted. In general, upland source control decisions will be made based primarily or solely on data collected by the upland responsible party. The case where in-water data or other information (e.g., in-water risk assessment) is needed to assist the evaluation of source control should be viewed as a data gap that is expected to be filled through the PH RI/FS in a manner consistent with the upland project schedule. The strategy should state clearly that, in general, the need for source control will be determined through upland work and that upland investigations will rely on in-water data only as necessary.

Page 2-4. Section 2.4.3, second paragraph: Provide additional discussion concerning documentation of upland cleanup decisions and clarify terminology for the upland vs. the in-water RODs. Example: "Upland source control decisions will be documented in DEQ Source Control RODs. The EPA will assess source control decisions made prior to the CERCLA ROD to confirm whether upland sources have been controlled to levels that are protective of human health and the environment. Facilities that do not perform necessary source control prior to the EPA Portland Harbor ROD ~~will~~ remain within the Portland Harbor Superfund Site. DEQ and EPA will share information concerning subsequent upland source control decisions to ensure that newly selected upland remedies continue to be protective of human health and the environment in the river."

SECTION 3—SCREENING LEVEL VALUES

A modified Source Control Screening Criteria Table is attached. Language changes will be required in Section 3 to reflect the changes in the table. Specific changes to the screening table include:

1. The summary column "Stormwater/Groundwater/Surface Water Toxicity Screening Value" has been removed. All criteria are presented. The JSCS should describe how screening criteria are to be applied.
2. Two Columns have been added for human health soil/catch basin sediment screening criteria. However, no values have been included. Further discussion between EPA and DEQ is required to determine these screening criteria. For example, direct contact screening criteria may be developed based on EPA Region 9 industrial soil PRGs.

3. Additional bioaccumulation screening values have been added for ecological soil/catch basin sediment criteria. These values were taken from DEQ's Ecological Risk Assessment Guidance – Level II Screening Level Values.
4. Safe Drinking Water Act MCLs have been included as source control screening criteria. The reference to tap water PRGs as "for comparison purposes only" has been removed.
5. Human Health Fish Consumption Screening Values for water have been modified to include all chemicals for which Human Health AWQC are available regardless of whether these chemicals have been detected in Portland Harbor fish tissue samples and the "Current Portland Harbor PBT?" column has been removed. In addition, three fish consumption rates have been included consistent with the Portland Harbor RI/FS: 17.5 g/day, 142 g/day and 175 g/day.

Oregon groundwater protection regulations provide that drinking water is a protected beneficial use of the groundwater in the Portland Harbor Superfund Site and Oregon water quality standards designate drinking water as a beneficial use of Willamette River water. As a result, Safe Drinking Water Act Maximum Contaminant Levels (MCLs) would likely be preliminary remediation goals for the RI/FS, and may be potential ARARs (relevant and appropriate) under CERCLA. Water quality criteria, including chronic ambient water quality criteria and human health criteria based on fish consumption should be considered potential ARARs for the CERCLA cleanup. Because they are potential ARARs, human health fish consumption AWQCS should not be limited to those chemicals detected in Portland Harbor fish tissue samples. Under CERCLA, meeting ARARs is considered a threshold criterion for selection of a remedy. These values have been added to the table.

Water quality criteria, including chronic ambient water quality criteria for aquatic life and human health criteria based on fish consumption should be considered potential ARARs for the CERCLA cleanup. Under CERCLA, meeting ARARs is considered a threshold criterion for selection of a remedy.

The table developed by ODEQ contained human health screening levels based upon 2 fish consumption rates: 17.5 g/day and 175 g/day. The fish consumption value of 17.5 g/day is that currently used as a default for the general population in EPA's WQC and is also the value used for the recent WQS adopted by the state. The screening level based upon 175 g/day of fish was also used because it is the highest fish consumption rate being used for the PH risk assessment – this value is based on tribal fish consumption from the CRITFC study. As a comparison, EPA has added a third screening level to the table based on a consumption rate of 142.4 g/day. This is the other default fish consumption rate used in the development of EPA's WQC and is considered to be an average fish consumption rate for subsistence fishers.

The state water quality standards (based upon the fish ingestion rate of 17.5 g/day) have been adopted by EQC but not yet approved by EPA. National Recommended Water Quality Criteria are not promulgated standards. It is unclear when EPA will approve Oregon's proposed water quality standards or whether the standards will change as a result of EPA's review process. Further discussion between EPA and DEQ is required to develop an approach for identifying which criteria are currently in effect.

Narrative water quality standards should be included. Narrative standards may be used in the absence of numeric standards to compel source control measures.

The following hierarchy has been proposed by DEQ for developing source control criteria for protection of aquatic life: DEQ AWQSC, NRWQC and Oak Ridge National Laboratory (ORNL) values. The more stringent of the promulgated standards and the National Recommended Water Quality Criteria should be used. These promulgated standards should be considered potential ARARs under federal law. ORNL values should be used as source control criteria only if no state or federal criteria exist.

The Joint Source Control Strategy should clarify the relative weight of the Screening Level Values categories. Promulgated criteria such as Safe Drinking Water Act Maximum Contaminant Levels (MCLs), non-zero Maximum Contaminant Level Goals (MCLGs), and Ambient Water Quality Criteria (AWQC) will likely be ARARs in a CERCLA ROD and may be used by the State of Oregon to demonstrate adverse effects on beneficial water uses and identify hot spots of contamination. Other criteria, such as Oak Ridge National Laboratory (ORNL) are not ARARs under federal law, however these criteria may be able to be used to make a determination that beneficial water uses are being adversely affected.

The SLVs should be applied at the upland point of discharge to the river (i.e. water at the end of a discharge pipe; soil or material at the riverbank; groundwater measured at the shoreline).

It is unclear how the hardness dependent DEQ AWQC were calculated. The National Recommended Water Quality Criteria (NRWQC) are calculated correctly based on 25 mg/l hardness, are more stringent than the DEQ AWQC, and should be used.

It is unclear where the DEQ chronic AWQC was taken from. The value listed on Table 20 and 33A of the water quality rules is listed as 0.012 ug/l. The NRWQC is listed as 0.77 ug/l; the state value of 0.012 ug/l should be used.

Manganese has been detected in groundwater at the Oregon Steel Mills site at elevated levels. In addition, cis-1,2-dichloroethene has been detected in transition zone water at the Siltronic site at elevated levels. The ORNL values of 0.12 ug/l for manganese and 590 ug/l for cis-1,2-dichloroethene should be added to the table. The table should be reviewed against DEQ's Level II Screening Level Values to identify other chemicals that should be included on the list.

Table 33B of the state water quality regulations lists a freshwater chronic criteria of 0.063 ug/l for tributyltin. This value should be included in the table.

The titles to and discussions in Step 1 through 5 will need to be modified to reflect the previous comments and the changes to the screening table. A few specific comments are included below:

Step 1—. The discussion of the issue with PAHs should be deleted. Human health fish consumption AWQCs and other criteria relevant to the fish consumption pathway should be applied to PAHs and other chemicals for which Human Health AWQC are available even though these chemicals have not been detected in fish tissue. As stated in the general comments above, fish consumption AWQC may be considered ARARs and thus may be applied to groundwater and other water discharges to the Willamette River.

Step 2—As stated in the general comments, there is a distinction between screening criteria (e.g., SLVs based on a fish consumption rate of 175 g/day) and promulgated standards. At this time, it is unclear whether the water quality standard currently in effect is the based on a fish consumption rate of 17.5 g/day or 142 g/day. However, the 175 g/day values are clearly screening values and should be designated as such.

It is unclear how values will be determined for chemicals identified as TBD on Table 3-1. These include cadmium, lead and tributyltin (TBT). Because AWQC are not available for these chemicals, other criteria may need to be applied for the purposes of determining the need for source control measures. The results of the Portland Harbor baseline risk assessment may be used to determine whether upland sources of the "TBD" chemicals represent a risk to human health or the environment. The issue of how these chemicals will be evaluated should be agreed upon between DEQ and EPA and documented in the JSCS. This issue should not be described as a "problem" in the JSCS. The screening table should include a footnote stating that additional chemicals may be identified for source control screening purposes.

Step 4—Although the proposal to use probably effect concentrations (PECs) is acceptable, the JSCS should acknowledge that the Portland Harbor RI/FS will attempt to develop site specific sediment toxicity criteria based on application of predictive model based on sediment chemistry and toxicity data. If the predictive model approach is successful, site specific values will need to be considered and may supersede the PEC values. Further discussion of how site specific sediment criteria may be applied is required.

Step 5—Many of the bioaccumulation values are very low. In some cases (e.g., cadmium) the SLVs are below naturally occurring background. In other cases, (e.g., PCBs and DDT) the SLVs may approach or be below detection capability. This section should include a discussion of how site specific criteria that result from application of the Portland Harbor food web model might be applied to evaluate this pathway.

SECTION 4—SOURCE CONTROL DECISION PROCESS

This section should be renamed "Source Control Screening and Prioritization."

The source control prioritization flowchart should be revised to reflect specific comments that cover the prioritization approach.

Page 4-1, Section 4.1: This section should make clear that RI data may not be required at all upland facilities. In some cases, PA or SI level information will be adequate to determine that an upland facility is not a source of contamination (i.e., a complete pathway does not exist) to the Willamette River. However, for those sites with a complete pathway to the Willamette River, RI level data will be collected.

If DEQ's site discovery and evaluation processes must be attached to this JSCS, then a statement indicating those Appendices and the processes are DEQ's and are provided for information purposes only.

Page 4-2, Section 4.3: The list of specific factors that will be considered in evaluating the priority level for site source control should be moved into the sections that follow where high, medium, and low priority sites are described.

Page 4-2, Section 4.3.1: Site conditions that would lead to a "high priority" designation should be listed with some specificity to provide direction to the agencies in making the priority determination, and to demonstrate the basis for the decision to outside parties. Example: "A high priority site has a contaminant significantly above the SLV, or a bioaccumulative detected above the SLV, at the point of discharge to the river (i.e. water at the end of a discharge pipe; soil or material at the riverbank; groundwater measured at the shoreline) where an ongoing upland source exists." A couple of environmental examples could be used to describe the application of this definition. The section should clearly state the next steps in the source control process and explain the action in the context of other upland actions: "Sites identified as high priority will move directly into source control. It is DEQ's expectation that actions will be initiated under DEQ's removal authority. Removal actions will, to the extent practicable, contribute to the efficient performance of any long-term upland action, in particular, where a single action might address contiguous upland sites. Any interim action should not be inconsistent with nor preclude implementation of an expected final remedy. The specific actions may parallel the CERCLA time critical or non-time critical removal path...."

High priority sites are those facilities where data indicates that one or more media exceeds the screening criteria significantly and there is a known or likely complete pathway to the river. EPA expects that high priority sites will be identified through the preliminary assessment phase or site characterization process that is the first phase of an EE/CA and that source control measures will be implemented without delay. Upon determination of a high priority site, the EE/CA schedule should be reconsidered to quicken the schedule for getting to implementation of control measures. EPA agrees that in some cases, source control measures should be implemented as a time-critical action.

Page 4-2, Section 4.3.2: Site circumstances considered in the decision to pursue source control at a "medium priority" site should be listed with some specificity. The weight-of-evidence evaluation should focus on upland evidence that a source is impacting, or may impact, the river. In-water data could be used to supplement the upland data, but should not drive a decision concerning the need for source control. The following language demonstrates this approach:

"To determine if source control is needed, the evaluation of existing data or collection of additional data at the site should focus on the following factors:

- Potential for ongoing release based on the magnitude of the contamination source;
- Potential for risk to the river based on the type, level, and number of contaminants;
- Potential for contaminant flux to the river based on the nature of the contaminant and the presence of an environmental transport mechanism.

In-water characterization or investigation could be used as part of the weight-of-evidence evaluation to supplement the upland data:

- Evaluation of available in-water sediment, bioassay, fish tissue or other data...."

Medium-priority sites are those that have one or more media that exceed the screening criteria but not significantly. Medium-priority sites may be identified through the preliminary assessment phase or the site characterization work during the EE/CA process. Usually, the preliminary assessment information will indicate that more information and characterization work is necessary to determine if there is a complete pathway to the river. Further discussion of the vehicle for evaluation and documentation at medium-priority sites is required between EPA and DEQ. It is clear that there are some sites where source control is necessary and that the upland responsible party should be given limited opportunity to argue that source control is not necessary. On the other hand, there are some sites where even though source control action criteria (i.e., standards) are exceeded, some flexibility is desirable. However, it is also desirable to place the burden for demonstrating that source control is not necessary at this time on the upland responsible party rather than the agencies. The EE/CA could be used to determine if other measures (e.g., in-water sediment remediation, removal of upland source materials and natural attenuation) would be adequate to ensure that the upland source does not represent a risk to human health or the environment, exceed ARARs, or represent and adverse effect on beneficial water uses.

Page 4-3, Section 4.3.3: The definition of a low-priority site should be clarified, especially in terms of "No Further Action" determinations and the potential need to revisit low-priority sites following the in-water risk assessment. Further discussion of the vehicle for evaluation and documentation at low-priority sites is required between EPA and DEQ.

Pages 4-3 and 4-4, Section 4.4: This section should acknowledge the source control decision making process. Source control decisions forwarded to EPA for review and comment may include determinations that source control is or is not required. When it is determined that source control is required, EPA should be provided an opportunity to provide input in decisions about the source control implementation process. This includes the objectives of the source control measure, evaluation and selection of source control measures, the design of source control measures, the schedule for implementation of source control measures and the integration of source control measures with the in-water RI/FS.

- Further discussion is required between EPA and DEQ regarding how the in-water ROD will consider source control. However, since much more information is needed to evaluate the scope of the CERCLA ROD, this topic should not be included in the source control strategy. Previously, EPA has framed the general goal of the upland source control work to be to control sources sufficiently so that a federal cleanup is not required.

SECTION 5—SOURCE CONTROL SCREENING

The content of this section is unnecessarily repetitive. Each subsection states that numeric criteria have not been developed for contaminated media to evaluate impacts to human health and the environment, and almost identical lists of weight-of-evidence factors are presented for each media. Also, the stand-alone examples of a source control measure for each media have the effect of appearing to limit possible response alternatives. Much of this section could be removed and replaced with a statement referring the reader to the screening level table values and a targeted list of weight-of-evidence factors covering source magnitude, nature of the contaminant, and potential for contaminant flux to the river. Source control measure examples for each media could be presented in a couple of sentences within the text of each subsection. The information that might be retained within each subsection could include additional weight-of-evidence factors particular to the environmental media, and a description of the environmental sampling and monitoring locations that would be used to evaluate the need for source control. This consolidated information could be retained as Section 5, or it could be moved to Section 4 under the description of a medium priority source control site. The weight-of-evidence approach would only be used at the medium priority sites, because the high priority sites would move directly into source control based on the magnitude of contamination at the point of discharge to the river at a site with an ongoing source.

Is it true that source control evaluations will be performed concurrent with the upland risk assessment? It seems that in many instances it will be appropriate for this step to occur prior to completion of the upland RA.

Page 5-1, Section 5.1: This section should include a statement that wind entrainment and subsequent deposition in the Willamette River of contaminated soils is not considered a significant exposure pathway.

Page 5-2, "Example 1 – Erosion Control: Although revegetation may be an acceptable way of preventing erosion, revegetation in conjunction with the excavation/removal of contaminated soils is the preferred option.

Page 5-3, Section 5.1.2: The introductory paragraph should include a statement that subsurface soil remediation (source removal) may be an effective way to achieve source control where active source control measures (e.g., hydraulic control) do not appear cost effective. In many cases, source removal will be performed as part of the upland remediation necessary to protect terrestrial receptors and meet DEQ's hot spot requirements.

Page 5-5, Section 5.2, first full paragraph: The weight-of-evidence discussion should also acknowledge that groundwater discharges may also adversely affect surface water.

Page 5-6, Section 5.3: Further discussion between EPA and DEQ is required to determine the role of the clean water act (e.g., permit limits, TMDLs) in controlling storm water discharges. Stormwater discharges within Portland Harbor are a mix of permitted and unpermitted discharges. In addition, stormwater conveyances are a mix of publicly (e.g., City of Portland, Oregon Department of Transportation) and privately controlled systems. EPA and DEQ should work together to develop a comprehensive stormwater control program that ensures that all stormwater discharges within Portland Harbor are permitted and the establishment of Portland Harbor specific monitoring requirements and best management practices (BMPs).

Appendix B – Land and Beneficial Water Use: The bullet on page B-2 states that land and beneficial water uses associated with the Willamette River are specifically excluded. It should be clarified that this is an EPA determination and that water uses for the Willamette River will be based on CERCLA requirements (e.g., potential future water use).

Table x. Screening Level Values for soil/catch basin sediment, stormwater, groundwater and surface water (A)	Soil/ Catch Basin Sediment				Water									
	HUMAN HEALTH SCREEING VALUES		ECOLOGICAL SCREENING VALUES		ECOLOGICAL SCREENING VALUES					HUMAN HEALTH SCREENING VALUES				
Analytes	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Direct Contact Screening Value (mg/kg dry weight) [1]	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Toxicity Screening Value (mg/kg dry weight) [1]	NRWQC [5][B] - acute values	DEQ AWQC[6] - acute values	NRWQC [5][B] - chronic values	DEQ AWQC[6] - chronic values	ORNL[7]	EPA Region 9 Tap Water PRG[8]	SDWA MCL (30)	Fish Consumption Only(9) (17.5 g/day)	Fish Consumption Only(9) (142 g/day)	Fish Consumption Only(9) (175 g/day)
	TBD	TBD												
Metals/Inorganics, mg/L (ppm)														
Aluminum (pH 6.5 - 9.0)[24]					0.750		0.087		0.46	36				
Antimony			10 [22]	64 [13]		9 [27]		1.6 [27]	0.61	0.015	0.006	0.64	0.079	0.064
Arsenic				33 [12]	0.34	.85 [27]	0.15	0.048 [27]		0.000045	0.01	0.00014	0.000017	0.000014
Arsenic III			4 [22]			0.36 [25]		0.19 [25]	0.914					
Beryllium			122 [22]								0.004			
Barium											2			
Cadmium[26]			0.003 [22]	4.98 [12]	0.00052	0.00082	0.000094	0.00038	0.00015	0.018		TBD	TBD	TBD
Chromium, total			4200 [22]	111 [12]							0.1			
Chromium, hexavalent					0.016	0.016 [25]	0.011	0.011 [25]	0.002	0.11				
Copper[26]			10 [22]	149 [12]	0.00364	0.0048	0.0029	0.0036	0.00023	1.5	1.3 (31)			
Lead[26]			128 [22]	128 [12]	0.01388	0.01398	0.00054	0.00054	0.012		0.015 (31)	TBD	TBD	TBD
Manganese									0.12					
Mercury[11]				1.06 [12]		0.0024	0.00077	0.0021	<0.00023	0.011	0.002	0.3	0.04	0.03
Nickel[26]			316 [22]	48.6 [12]	0.145	0.438	0.016	0.048	<0.005	0.73		4.6	0.57	0.46
Selenium			0.1 [22]	5 [14]		0.26 [25]	0.005	0.035 [25]	0.0883	0.18	0.05	4.2	0.52	0.42
Silver [26]				5 [15, 14]		0.00037		0.00012	0.00012	0.18				
Thallium			0.7 [22]								0.002			
Zinc[26]			3 [22]	459 [12]	0.0362	0.0362	0.0365	0.0327	0.03	11		26	3.2	2.6
Perchlorate										0.0036				
Cyanide[29]					0.022	0.022	0.0052	0.0052		0.73	0.2	0.14	0.017	0.014
Butyltins[23], µg/L (ppb)														
Monobutyltin														
Dibutyltin														
Tributyltin[a]			0.19 [22]		0.46		0.063			11		TBD	TBD	TBD
Tetrabutyltin														
PCBs Aroclors, µg/L (ppb)														
Aroclor 1016			0.42 [22]	0.53 [19]		2 [28]	0.014[28]	0.014[28]		0.96		0.000064[28]	7.89E-06	6.40E-06
Aroclor 1221						2 [28]	0.014[28]	0.014[28]	60	0.034		0.000064[28]	7.89E-06	6.40E-06
Aroclor 1232						2 [28]	0.014[28]	0.014[28]	124	0.034		0.000064[28]	7.89E-06	6.40E-06
Aroclor 1242			0.002 [22]			2 [28]	0.014[28]	0.014[28]	4.9	0.034		0.000064[28]	7.89E-06	6.40E-06
Aroclor 1248			0.004 [22]	1.5 [19]		2 [28]	0.014[28]	0.014[28]		0.034		0.000064[28]	7.89E-06	6.40E-06

Table x. Screening Level Values for soil/catch basin sediment, stormwater, groundwater and surface water (A)	Soil/ Catch Basin Sediment				Water									
	HUMAN HEALTH SCREEING VALUES		ECOLOGICAL SCREENING VALUES		ECOLOGICAL SCREENING VALUES					HUMAN HEALTH SCREENING VALUES				
Analytes	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Direct Contact Screening Value (mg/kg dry weight) [1]	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Toxicity Screening Value (mg/kg dry weight) [1]	NRWQC [(5)(B)] - acute values	DEQ AWQC[(6)] - acute values	NRWQC [(5)(B)] - chronic values	DEQ AWQC[(6)] - chronic values	ORNL[(7)]	EPA Region 9 Tap Water PRG[(8)]	SDWA MCL (30)	Fish Consumption Only(9) (17.5 g/day)	Fish Consumption Only(9) (142 g/day)	Fish Consumption Only(9) (175 g/day)
Aroclor 1254			0.01 [(22)]	0.3 [(19)]		2 [(28)]	0.014[(28)]	0.014[(28)]	0.1	0.034		0.000064[(28)]	7.89E-06	6.40E-06
Aroclor 1260				0.2 [(19)]		2 [(28)]	0.014[(28)]	0.014[(28)]	2.3	0.034		0.000064[(28)]	7.89E-06	6.40E-06
Aroclor 1262						2 [(28)]	0.014[(28)]	0.014[(28)]				0.000064[(28)]	7.89E-06	6.40E-06
Aroclor 1268						2 [(28)]	0.014[(28)]	0.014[(28)]				0.000064[(28)]	7.89E-06	6.40E-06
Total PCBs				0.676 [(12)]		2	0.014	0.014	0.1	0.034	0.0005	6.40E-05	7.89E-06	6.40E-06
PCB Congeners														
All 209 PCB congener target analytes														
Chlorinated Herbicides, µg/L (ppb)														
Alachlor											2			
Dalapon										1,100	200			
Dicamba										1,100				
DBCP											0.2			
MCPA														
Dichlorprop														
Diquat											20			
Endothall											100			
2,4-D										360	70			
2,4,5-TP (Silvex)										290	50			
2,4,5-T										360				
2,4-DB										290				
Dinoseb										36	7			
MCPP														
Picloram											500			
Simazine										360	4			
Organochlorine Pesticides, µg/L (ppb)														
a - BHC									2.2	0.011		0.0049	0.000603873	0.00049
b - BHC									2.2	0.037		0.017	0.00209507	0.0017
g - BHC (Lindane)				0.00499 [(12)]	0.95	0.95		0.08	0.08	0.052	0.2	1.8	0.22	0.18
d - BHC									2.2	0.037				
Heptachlor				0.01 [(16)]		0.52		0.0038	1.26	0.015	0.4	7.90E-05	9.74E-06	7.90E-06

Table x. Screening Level Values for soil/catch basin sediment, stormwater, groundwater and surface water (A)	Soil/ Catch Basin Sediment				Water									
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Aldrin				0.04 [16]	3	3				0.004		5.00E-05	6.16E-06	5.00E-06
Heptachlor epoxide				0.016 [12]	0.52	0.52	0.0038	0.0038		0.0074	0.2	3.90E-05	4.81E-06	3.90E-06
g - Chlordane				0.0176 [12]	2.4	2.4	0.0043	0.0043	1.09	0.19	2	8.10E-04	9.98E-05	8.10E-05
a - Chlordane				0.0176 [12]	2.4	2.4	0.0043	0.0043	1.09	0.19	2	8.10E-04	9.98E-05	8.10E-05
Endosulfan I					0.22	0.22	0.056	0.056	0.051	220		89	11	8.9
4,4'-DDE			0.0003 [22]	0.0313[12]		1,050 [27]				0.2		2.20E-04	2.71E-05	2.20E-05
Dieldrin				0.0618 [12]	0.24	0.24	0.056			0.0042		5.40E-05	6.65E-06	5.40E-06
Endrin				0.207 [12]	0.086	0.086	0.036			11	2	0.81	0.10	0.081
Endosulfan II					0.22		0.56		0.051	220		89	11	8.90000
4,4'-DDD			0.0003[22]	.028[12]		.06 [27]			1.69	0.28		3.10E-04	3.82E-05	0.00003
Endrin aldehyde												0.3	0.037	0.030
4,4'-DDT			0.0003[22]	.0629[12]	1.1	1.1	0.001	0.001	0.3	0.2		2.20E-04	2.71E-05	2.20E-05
Endosulfan sulfate												89	11	8.9
Endrin ketone														
Methoxychlor[a]							0.03	0.03	0.019	180	40			
Toxaphene					0.73	0.73	0.0002	0.0002		0.061	3	2.80E-04	3.45E-05	2.80E-05
oxy chlordane										0.19				
cis - nonachlor										0.19				
trans - nonachlor										0.19				
2,4'-DDD			.0003[22]									3.10E-04	3.82E-05	3.10E-05
2,4'-DDE			.0003[22]									2.20E-04	2.71E-05	2.20E-05
2,4'-DDT			.0003[22]					0.001				2.20E-04	2.71E-05	2.20E-05
DDT - total			.0003[22]							0.2				
Volatile Organic Compounds μg/L (ppb)														
1,1,1,2- Tetrachloroethane						9,320 [27]				0.43				
1,1,1- Trichloroethane (TCA)			1800000			18,000 [27]			3,493	3,200	200			
1,1,2,2- Tetrachloroethane						9,320 [27]		2,400 [27]	2,400	0.055		4	0.5	0.4
1,1,2- Trichloroethane						18,000 [27]		9,400 [27]	9,400	0.2	5	16	2.0	1.6
1,1- Dichloroethane									14,680	810				
1,1-Dichloroethene			1590 [22]								7			
1,2,3- Trichloropropane										0.0056				
1,2- Dichloroethane (EDC)			3430 [22]			118,000 [27]		20,000 [27]	15,200	0.12	5	37	4.6	3.7
1,2- Dichloropropane										0.16	5	15	1.8	1.5
1,2- Dibromoethane (EDB)										0.0056				

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2- Butanone (MEK)			1100000(22)						282,170	7,000				
2- Chloroethyl Vinyl Ether														
2- Hexanone									32,783					
4- Methyl-2-Pentanone (MIBK)									77,400					
Acetone			290 [22]						507,640	5,500				
Acrolein						68 [27]		21 [27]		0.042		290	36	29
Acrylonitrile						7,550 [27]		2,600 [27]		0.039		0.25	0.031	0.025
Bromochloromethane														
Bromodichloromethane										0.18				
Total Trihalomethanes											80			
Bromoform										8.5		140	17	14
Bromomethane										8.7				
Carbon Disulfide									244	1,000				
Carbon Tetrachloride			6080[22]			35,200 [27]			1,970	0.17	5	1.6	0.20	0.16
Chlorobenzene						250 [27]		50 [27]	1,203	110	100	1,600	197	160
Chlorodibromomethane												13	1.6	1.3
Chloroethane										4.6				
Chloroform			3660 [22]			28,900 [27]		1,240 [27]	1,240	0.17		470	58	47
Chloromethane										160				
cis-1,3-Dichloropropene														
cis-1,2-dichloroethene			5760 [22]								70			
Dibromomethane														
Dichlorodifuoromethane										390				
Iodomethane (Methyl Iodide)														
Isopropylbenzene														
Methylenechloride			990(22)						42,667	4.3	5	590	73	59
Styrene										1,600	100			
trans-1,4-Dichloro-2-butene														
Trichlorofluoromethane										1,300				
Vinyl Acetate									810	410				
Benzene			3920 [22]			5,300 [27]			525,000	0.35	5	51	6.29	5.1
EthylBenzene						32,000 [27]			>440	1,300	700	2,100	259	210
m,p-Xylene											10000			
Methyltert-butyl ether										6.2				
o-Xylene											10000			
Tetrachloroethene (PCE)			280(22)	0.5[17]		5,280 [27]		840 [27]	750	0.1	5	3.3	0.41	0.33
Toluene			5300(22)			17,500 [27]			1,269	720	1000	15,000	1,849	1,500

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trans-1,2-Dichloroethene										120	100	140,000	17,254	14,000
trans-1,3-Dichloropropene										.				
Trichloroethene (TCE)			140(22)	2.1[(17)]		45,000 [(27)]		21,900 [(27)]	7,257	0.028	5	30	3.70	3.00
Vinyl Chloride			30(22)							0.02	2	2.4	0.30	0.24
Semivolatile Organic Compounds, µg/L (ppb)														
Halogenated Compounds														
1,2-Dichlorobenzene				1.7 [(17)]		1,120 [(27)]		763 [(27)]	14	370	600	1,300	160	130
1,3-Dichlorobenzene				0.3 [(17)]		1,120 [(27)]		763 [(27)]		180		960	118	96
1,4-Dichlorobenzene				0.3 [(17)]		1,120 [(27)]		763 [(27)]		0.5	75	190	23	19
1,2,4-Trichlorobenzene				9.2 [(17)]					110	7.2	70	70	9	7
Hexachlorobenzene				0.1 [(16)]		250 [(27)]		50 [(27)]		0.042		2.90E-04	3.57E-05	2.90E-05
2-Chloronaphthalene										490		1,600	197	160
Hexachloroethane						980 [(27)]		540 [(27)]		4.8		3.3	0.41	0.33
Hexachlorobutadiene				0.6 [(18)]		90 [(27)]		9.3 [(27)]		0.86		18	2	2
Hexachlorocyclopentadiene				0.4 [(18)]		7 [(27)]		5.2 [(27)]	5.2	220		1,100	136	110
2,2'-oxybis(1-chloropropane)														
Bis-(2-chloroethoxy) methane									11,000					
Bis-(2-chloroethyl) ether										0.0098		0.53	0.065	0.053
4-Chlorophenyl-phenyl ether														
4-bromophenyl-phenyl ether									1.5					
3,3'-Dichlorbenzidine						1,120 [(27)]		763 [(27)]		0.15		0.028	0.0035	0.0028
4-Chloroaniline							50			150				
Organonitrogen Compounds														
Nitrobenzene						27,000 [(27)]				3.4		690	85	69
Aniline										12				
2-Nitroaniline										110.0				
3-Nitroaniline										3.2				
4-Nitroaniline										3.2				
N-Nitrosodimethylamine										0.0013		3	0.37	0.30
N-Nitroso-di-n-propylamine										0.0096		0.51	0.063	0.051
N-Nitrosodiphenylamine									332	14		6	0.74	0.60
2,4-Dinitrotoluene										73		3.4	0.42	0.34
2,6-Dinitrotoluene										36				

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Carbazole				1.6 [15]						3.4				
Oxygen-Containing Compounds														
Benzoic Acid									42	150,000				
Benzyl Alcohol									8.7	11,000				
Dibenzofuran									3.7	12				
Isophorone						117,000 [27]				71		960	118	96
Phenols and Substituted Phenols														
Phenol				0.05 [15, 16]		10,200 [27]		2,560 [27]	<200	11,000		1,700,000	209,507	170,000
2-Methylphenol							13			1,800				
4-Methylphenol										180				
2,4-Dimethylphenol										730		850	105	85
2-Chlorophenol						4,380 [27]		2,000 [27]		30		150	18	15
2,4-Dichlorophenol						2,020 [27]		365 [27]		110		290	36	29
2,4,5-Trichlorophenol[a]										3,600		3,600	444	360
2,4,6-trichlorophenol								970 [27]		3.6		2.4	0.30	0.24
2,3,4,6-Tetrachlorophenol										1,100				
Pentachlorophenol			0.37 [22]	1.0 [18]	19		15		8.7	0.56	1	3	0.37	0.30
4-Chloro-3-methylphenol														
2-Nitrophenol						230 [27]		150 (27)						
4-Nitrophenol						230 [27]		150 (27)	150					
2,4-Dinitrophenol						230 [27]		150 (27)		73		5,300	653	530
4,6-Dinitro-2-methylphenol						230 [27]		150 (27)				280	35	28
Phthalate Esters														
Dimethylphthalate						940 [27]		3 [27]	3	360,000		1,100,000	135,563	110,000
Diethylphthlalate			8300(22)	0.6 [17]		940 [27]	3	3 [27]	210	29,000		44,000	5,423	4,400
Di-n-butylphthalate			0.06 [22]	0.1 [16]		940 [27]		3 [27]	35.0	3,600		4,500	555	450
Butylbenzylphthalate						940 [27]		3 [27]	3	7,300		1900	234	190
Di-n-octylphthalate						940 [27]		3 [27]	708	1,500				
bis(2-Ethylhexyl)phthalate			0.33 [22]	0.8 [15, 16]		940 [27]		3 [27]	3	4.8	6	2.2	0.27	0.22
Polycyclic Aromatic Hydrocarbons														
Naphthalene				0.561 [12]		2,300 [27]		620 [27]	620	6.2				

Table x. Screening Level Values for soil/catch basin sediment, stormwater, groundwater and surface water (A)	Soil/ Catch Basin Sediment				Water									
	HUMAN HEALTH SCREEING VALUES		ECOLOGICAL SCREENING VALUES		ECOLOGICAL SCREENING VALUES					HUMAN HEALTH SCREENING VALUES				
Analytes	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Direct Contact Screening Value (mg/kg dry weight) [1]	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Toxicity Screening Value (mg/kg dry weight) [1]	NRWQC [5][B] - acute values	DEQ AWQC[6] - acute values	NRWQC [5][B] - chronic values	DEQ AWQC[6] - chronic values	ORNL[7]	EPA Region 9 Tap Water PRG[8]	SDWA MCL (30)	Fish Consumption Only(9) (17.5 g/day)	Fish Consumption Only(9) (142 g/day)	Fish Consumption Only(9) (175 g/day)
2-Methylnaphthalene				0.2 [21]										
Acenaphthylene				0.2 [16]										
Acenaphthene				0.3 [16]		1,700 [27]		520 [27]	23	370		990	122	99
Fluorene				0.536 [12]					3.9	240		5,300	653	530
Phenanthrene				1.170 [12]					6.3					
Anthracene				0.845 [12]					0.09	1,800		40,000	4,930	4,000
Fluoranthene				2.23 [12]		3,980 [27]			6.2	1,500		140	17	14
Pyrene				1.52 [12]						180		4,000	493	400
Benzo(a)anthracene				1.05 [12]					0.027	0.092		0.018	0.0022	0.0018
Chrysene				1.29 [12]						9.2		0.018	0.0022	0.0018
Benzo(b)fluoranthene										0.092		0.018	0.0022	0.0018
Benzo(k)fluoranthene				13 [16]						0.92		0.018	0.0022	0.0018
Benzo(a)pyrene			0.1 [22]	1.45 [12]					0.014	0.0092	0.2	0.018	0.0022	0.0018
Indeno(1,2,3-cd)pyrene				0.1 [20]						0.092		0.018	0.0022	0.0018
Dibenz(a,h)anthracene				1.3 [19]						0.0092		0.018	0.0022	0.0018
Benzo(g,h,i)perylene				0.3 [16]										
Chlorinated Dioxins and Furans, µg/L (ppb)														
2,3,7,8,-TCDD (Toxicity Equivalence Quotient)										4.5E-07	3.0E-05	5.1E-09	6.3E-10	5.1E-10
2,3,7,8,-TCDD			8.5 E-7 [22]	9.0 E-6 [16]		0.01 [27]		0.00038 [27]		4.5E-07	3.0E-05	5.1E-09	6.3E-10	5.1E-10
2,3,7,8-TCDF														
1,2,3,7,8-PeCDD														
1,2,3,7,8-PeCDF														
2,3,4,7,8-PeCDF														
1,2,3,4,7,8-HxCDD														
1,2,3,6,7,8-HxCDD														
1,2,3,7,8,9-HxCDD														
1,2,3,4,7,8-HxCDF														
1,2,3,6,7,8-HxCDF														
1,2,3,7,8,9-HxCDF														
2,3,4,6,7,8-HxCDF														
1,2,3,4,6,7,8-HpCDD														
1,2,3,4,6,7,8-HpCDF														

Table x. Screening Level Values for soil/catch basin sediment, stormwater, groundwater and surface water (A)	Soil/ Catch Basin Sediment				Water									
	HUMAN HEALTH SCREEING VALUES		ECOLOGICAL SCREENING VALUES		ECOLOGICAL SCREENING VALUES					HUMAN HEALTH SCREENING VALUES				
Analytes	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Direct Contact Screening Value (mg/kg dry weight) [1]	Potentially Erodable /Transportable Soil Bioaccumulation Screening Value (mg/kg dry weight) [22]	Potentially Erodable /Transportable Soil Toxicity Screening Value (mg/kg dry weight) [1]	NRWQC [5][B] - acute values	DEQ AWQC[6] - acute values	NRWQC [5][B] - chronic values	DEQ AWQC[6] - chronic values	ORNL[7]	EPA Region 9 Tap Water PRG[8]	SDWA MCL (30)	Fish Consumption Only(9) (17.5 g/day)	Fish Consumption Only(9) (142 g/day)	Fish Consumption Only(9) (175 g/day)
1,2,3,4,7,8,9-HpCDF														
OCDD														
OCDF														
Total tetrachlorinated dioxins														
Total pentachlorinated dioxins														
Total hexachlorinated dioxins														
Total heptachlorinated dioxins														
Total tetrachlorinated furans														
Total pentachlorinated furans														
Total hexachlorinated furans														
Total heptachlorinated furans														